

March 2012

Dam Maintenance

Background

To protect a dam from erosion and other forms of deterioration, owners need to make sure that basic maintenance tasks are done. Not only does maintenance prevent later repairs that may be costly, it also protects the downstream public. State law, specifically K.A.R. 5-40-75, also requires dam owners to maintain their dams.

Requirements

“Maintenance,” defined by the state of Kansas, “means the actions or upkeep performed on a dam or its appurtenances to compensate for wear and tear on the dam and appurtenances and to preserve the dam and appurtenances so that the dam and appurtenances function properly until they are removed, including woody vegetation control; grass seeding; burrowing animal control; repair of minor erosion, cracks, animal burrows, and minor settling; care of pipes, piezometers, drains, valves, gates, and other mechanical devices; replenishment of riprap; and removal of debris from spillways.”

Division of Water Resources field engineers find one common maintenance need is the elimination of excessive vegetation. All brush and weeds on the embankment should be killed with herbicide and then removed. Trees larger than six inches in diameter should be cut flush with the ground and stumps treated with herbicide. Damaged areas should be re-seeded with erosion resistant grass. Cut trees less than 12 inches in diameter near the ground level and spray with herbicide to prevent re-growth. In addition, remove the root ball of trees greater than 12 inches in diameter. Fill hole with compacted soil and seed.

Another maintenance item that can be overlooked, they have found, too, is updating the emergency action plan, a formal document outlining what is to be done in a dam emergency. Only owners of significant Class B and high hazard Class C dams are required by the state of Kansas to have EAPs.

Each part of the dam has its own needed maintenance tasks, and an itemized list of individual tasks and schedule helps make sure all maintenance tasks are properly completed. Maintenance, too, may be preventative, for example, restricting vehicles, unauthorized individuals, and livestock from the dam. Re-grading the dam crest to provide a uniform level over the entire length of the dam, too, minimizes damage and risk of failure due to overtopping flows in the event of extreme rainfall.

Damage repair, an unexpected maintenance task, also helps keep the structure intact. This repair and some maintenance repair, too, may be completed without a permit. However, before modification or alteration is attempted, contact DWR to check whether a permit may be needed. That’s because most permitted dams in Kansas were designed and constructed to safely pass a specific storm event. So, even a seemingly small change to the dam or its components can have adverse effects.

Embankment damage, capacity reduction, or even overtopping are some concerns associated with unpermitted alterations. If a permit is required for repair, dam owners need to file a permit application, pay required fee, and submit needed plan details.

